Colona Landscape Health Assessment

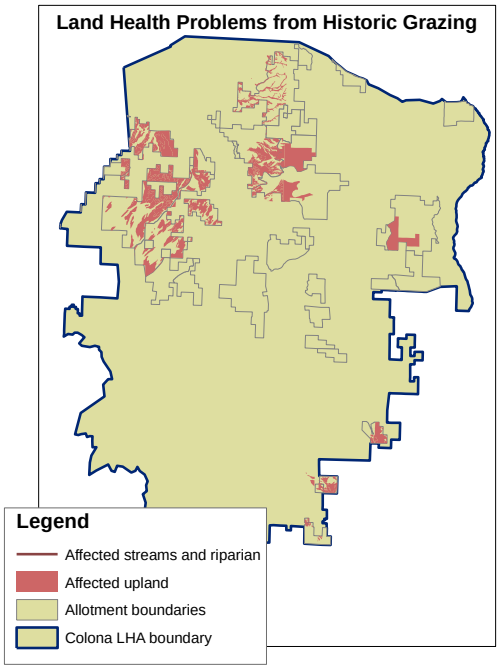
CAUSATIVE FACTOR DETERMINATION

Causative factors behind land health problems are addressed here for all standards taken together. The reason behind this is that one cause may impact several indicators and health standards at once. In addition, most of the land health problems observed in the landscape unit are not clearly linked to one causative factor, nor are they always related to a cause that is presently occurring. Often, causes were indirectly suggested, using the condition of indicators as evidence. In many areas, problems are occurring as a result of several causative factors which overlap spatially. As a result, acreage figures reported below may overlap for various causes.

Historic Grazing: Settlement of the area in the late 1880s opened the way for large unregulated livestock operations to graze much of the area. Ranchers had free and unlimited use of unreserved, unappropriated public lands until the Taylor grazing act of 1934. The primary purpose of this act was "to stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range, and for other purposes."

Regional accounts of settlement in this part of Colorado indicate that livestock numbers grazing the public rangelands were once many times what they are now (accounts vary widely ranging from 10-100 times the current number), and that the vegetation changed dramatically following the introduction of cattle, sheep, horses and other domestic grazers. It was not until the passage of the Taylor Grazing Act that the current system of individual grazing allotments was established and implemented.

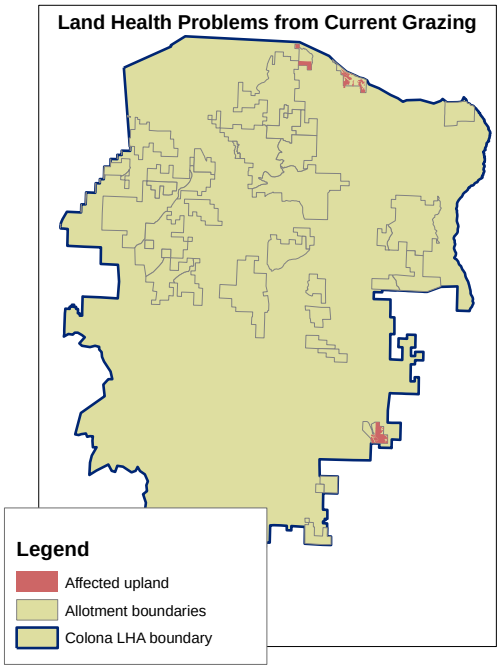
Prior to the Taylor Grazing Act, areas close to Montrose, Colona, and the Uncompahgre Valley bottom had heavy spring and fall, and even winter use by livestock until the middle of the 20th century, mostly by small 'farm flocks and herds". In the highest elevation areas, season long summer use was typically practiced at stocking levels that has been reported to have changed plant communities. In lower elevation areas, the milder climate allowed wintering livestock to exist with very limited or no additional feeding required, so these areas were among the most affected, with degradation still persisting today.



The interdisciplinary team used a number of factors to infer that historic grazing had contributing to problems in an area. Types of problems included a lack of cool season grasses in otherwise grassy communities, lack of forbs, or dominance by annuals, unpalatable plants, exotic species like Kentucky bluegrass, or woody species.

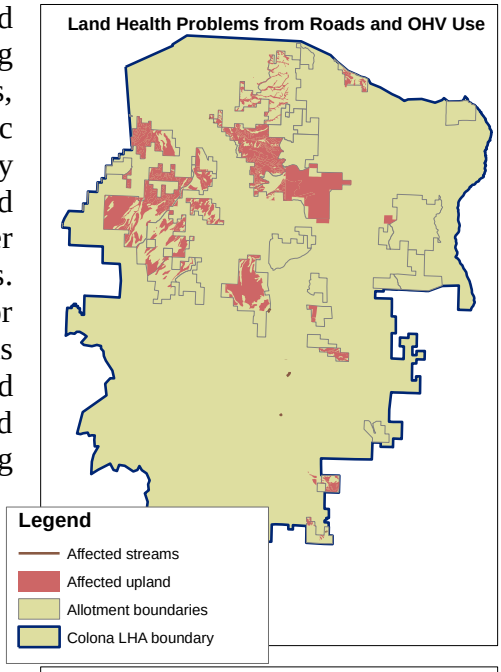
Historic grazing was a problem in many areas across the LHA unit. The interdisciplinary team identified 2,234 acres where historic grazing impacts had probably contributed to a polygon failing to meet one or more of Standards 1, 3 and 4. An additional 11,405 acres were rated as meeting Standard 1, 3 or 4 with problems, and historic grazing was cited as a factor. Historic grazing was not considered to be a factor behind any stream or water problems.

Current Grazing: Evidence of livestock grazing was searched for at each site to determine whether grazing was causing problems with soil or vegetation. The following evidence was searched for: poor condition areas with abundant livestock droppings, crowned grass plants, terracing of slopes from livestock paths, and heavy use on four-wing saltbush or other palatable shrub species. Livestock grazing was considered to be causing problems in riparian areas when abundant cattle sign was coupled with heavy utilization on woody and herbaceous species. Utilization information would be stronger evidence, however this has not been gathered very consistently nor uniformly across the Colona LHA area in the past.

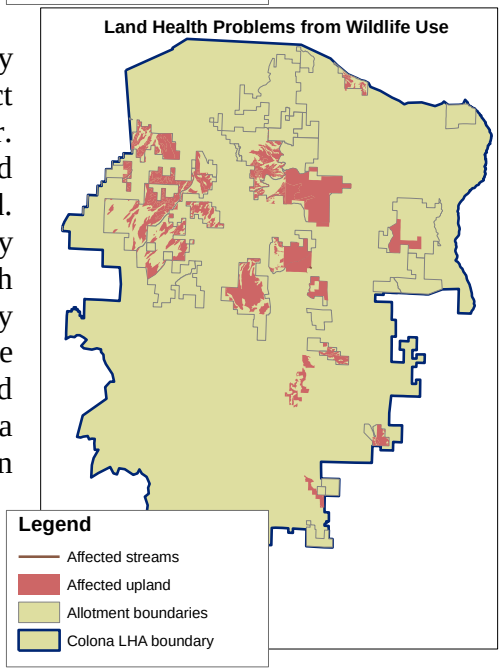


The ID team found very few upland areas where there was evidence that current livestock grazing was causing problems meeting upland standards (Standards 1, 3 and 4). The team identified no acres where current grazing impacts had contributed to a polygon failing to meet one or more of Standards 1, 3 and 4. There were 960 upland acres where livestock grazing contributed to lands meeting health standards with problems. Historic grazing was not considered to be a factor behind any stream or water problems.

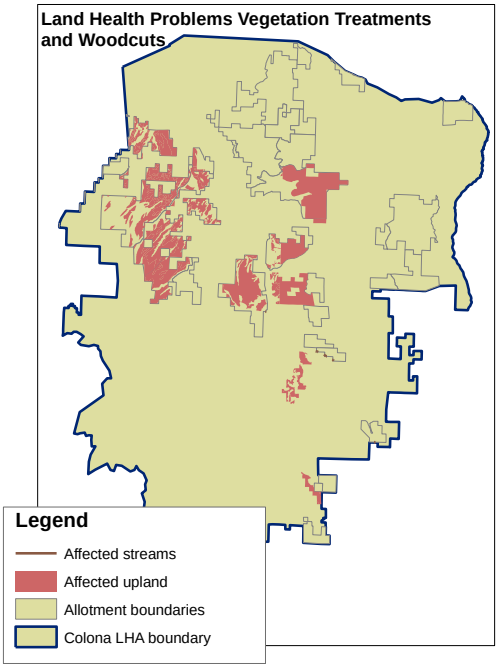
Roads: Poor road placement, road maintenance, and weeds associated with road maintenance cause problems with soil and vegetation indicators. These include increasing levels of bare soil, runoff drainage problems, gullying, noxious weed infestations and exotic plant dominance. Off-road use by off-highway vehicles, whether recreational or associated with woodcutting, rock collecting or other pursuits can also contribute to similar problems. Roads and OHV use were a contributing factor for 7,084 acres failing to meet upland Standards 1, 3 or 4; and 13,260 acres to meet the upland Standards with problems. Presently, road placement and OHV appears to be contributing to water quality and riparian area problems along 0.8 miles of streams in the Colona Area. These problems are located along the Uncompahgre River.



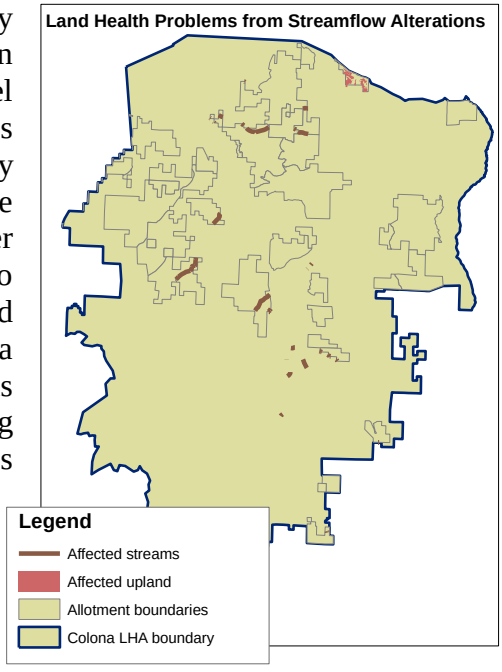
Heavy Wildlife Use: Heavy browse utilization caused by grazing wildlife (primarily deer and elk) causes shrubs to have a compact growth form, and often reduces shrub vigor. This is a chronic problem in heavily used winter range, which often falls on BLM land. Use levels on shrubs and forbs is frequently heightened in pinyon-juniper woodlands which border farm fields. Mule deer will typically feed in concentrated numbers in the fields in the mornings and evenings, and take shelter and browse the vegetation in the wooded area during the day. Heavy browsing can be an indication that deer and elk populations are too high for available habitat, or that habitat use and carrying capacity has been altered by agriculture. This situation was frequently encountered in the Colona area. Heavy browsing contributed to 3,622 acres not meeting Standard 3 or 4. An additional 17,935 acres met Standard 1, 3 or 4 with problems, due in part to heavy wildlife use. Presently, heavy wildlife use appears to be contributing to water quality and riparian area problems along 0.1 miles of streams in the Colona Area.

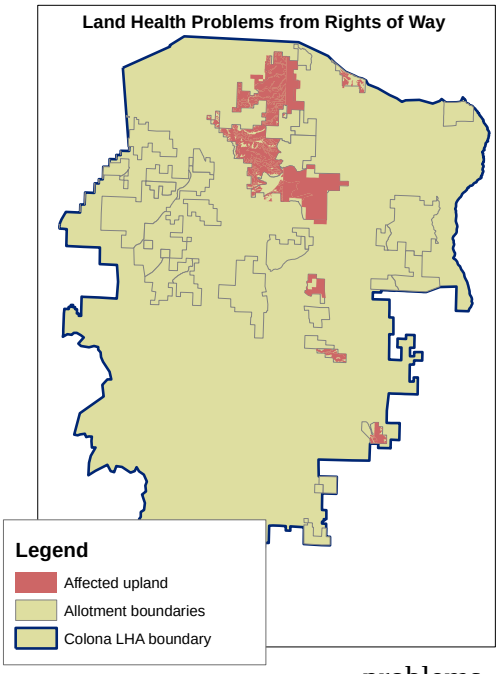


Past Vegetation Treatments and Woodcuts: Many vegetation treatments carried out over the past 50 years were either poorly implemented, not seeded, seeded with nonnative species like crested wheatgrass, or poorly managed after treatment. Some woodcuts suffer from similar problems, and are also likely to be weed-infested. Indictors including diversity, exotic plants, herbaceous species cover, bare soil and pedestalling sometimes reflected poor health for soils, vegetation, and wildlife habitat as a result. Vegetation treatments and woodcuts contributed to 2,626 acres not meeting either Standard 1, 3 or 4; and contributed to an additional 18,902 acres meeting Standard 1, 3 or 4 with problems. There was also some evidence that 0.4 miles of stream met Standards 2 and 5 with problems as a result of past, unauthorized vegetation treatments on willows.



Streamflow Alterations: Water diversions, dam-regulated flows, and flow augmentation (either using natural channels to convey additional irrigation water or to drain irrigation tailwater) have contributed to channel morphology and riparian vegetation changes along many streams in Colorado. Ridgway reservoir which controls streamflow in the Uncompahgre River, and numerous other ditches and canals to provide irrigation water to the Uncompahgre Valley have greatly altered historic streamflows in the Colona Area. As a result, water diversions or other flow alterations contributed to 3.1 stream miles not meeting Standard 2. An additional 5.3 stream miles were presently meeting standards 2 or 5 with problems. Nearly every stream in the LHA area was altered to some extent. An additional 313 acres of upland were rated as being affected by irrigation tailwater bringing in weeds.





Rights of Ways: The BLM requires rights-of-way leases for non-BLM projects which cross public lands. These include power lines, buried pipelines, communications towers, ditches, access roads, and other types of developments. These are typically permitted following environmental review and mitigation is required to offset environmental impacts. In some cases, the mitigation is not fully successful at returning the land to full health, especially in the case of weeds and exotic plants. In other cases, developments which cross public lands predate this requirement and have not been subject to mitigation. Rights of way—particularly along ditches and canals—were contributing factors for 4,459 acres to fail to meet either Standard 1, 3, or 4; and contributed to an additional 12,084 acres to meet the upland standards with problems.

Other Causes: A variety of other causes were also cited as contributing factors for some polygons failing to meet a standard, or meeting with problems. These problems are listed below.

Cause	Acres Not Meeting	Acres Meeting w/ Problems	Miles Not Meeting	Miles Meeting w/ Problems
Interspersed w/ private lands, weedy region	4,690	9,794	0	0
Noxious or Invasive Weeds	996	5,099	0	0
Flood Deposition	1,007	6,428	0	0
Recent Burns	0	1,430	0	0
Unusually Difficult Site for Growth	1,007	4,071	0	0
Vegetation Seral Stage	2,394	7,220	0	0
Pinyon Decline	2,394	0	0	0
Dispersed Recreation Impacts	231	1,516	0	0
Weather Related Impacts	0	86	0	0

Causes of Large Scale Problems: The long term trend for the west-central Colorado landscape is one in which vegetation seral stage is advancing, the average patch size is getting larger, the amount of "edge" is decreasing, the size and quality of browse stands are declining. Much of this is thought to be due to fire suppression. This has been affected to a certain extent in the Colona area by the recent drought, which has caused large scale pinyon die off in some areas. Smaller scale vegetation treatments have also

begun to increase vegetation diversity and the amount of edge habitat. Vegetation mosaic objectives are contained in the Uncompahgre Field Office Fire Management Plan, and the Spring Creek/Dry Creek Vegetation Management Strategy. There are still some problems with attaining these objectives, which should be addressed through development of vegetation management strategies across the rest of the Colona unit.

Concerns about tree invasion causing major land health problems are lessening in light of the ongoing drought and recent research on pinyon dendrochronology and stand structure on the Uncompahgre Plateau. This research indicates that many woodland stands have experienced density increases followed by density declines over the past several centuries, and these appear to be linked to climate fluctuations (Eisenhart 2004). Two prolonged wet periods over the past century are likely contributing to the increases in tree density, both within woodlands and invasion into new communities. Land management practices are probably also contributing, as livestock grazing may enhance tree establishment, and young trees have reappeared in the woodland chainings from the mid 20th century. However, the drought has recently killed many of these "invading" trees in some parts of the landscape, with tree death in some "invaded" areas as high as 90%. As yet there is no evidence that frequent fire in the shrub communities repelled tree invasions, so the effects of fire repression are not yet implicated.

Other, more difficult landscape level issues include human development and impacts of historic land use practices. Further, the abundance and amount of area supporting exotic and noxious vegetative species is increasing. Because of these, this area, as well as much of the adjacent landscape, is declining in overall quality for many species, and is becoming more favorable for weedy, invasive, typically nonnative species, with cheatgrass being the principle species of concern.

DECISION RECORD

DECISION: It is my decision to accept this determination of cause for problems associated with the Standards for Rangeland Health found during the Colona Landscape Health Assessment.

RATIONALE: The determination was based on extensive data collection coupled with review by an interdisciplinary team familiar with the landscape unit and the history of land uses that have occurred there.

SIGNATURE OF AUTHORIZED OFFICIAL: _____

Barbara Sharrow, Field Office Manager
Uncompahgre Field Office

DATE SIGNED: